NOTES.

THE following fifteen candidates have been selected by the council of the Royal Society to be recommended for election into the Society:—Mr. H. Brereton Baker, Prof. Henry T. Bovey, Prof. Rubert Boyce, Mr. John Brown, Mr. William Bate Hardy, Mr. Alfred Harker, Mr. Sidney S. Hough, Mr. Robert Kidston, Mr. Thomas Mather, Mr. John Henry Michell, Mr. Hugh Frank Newall, Prof. William M. Flinders Petrie, Mr. William Jackson Pope, Mr. Edward Saunders and Dr. Arthur Willey.

THE gold medal of the Linnean Society of London has this year been awarded to Prof. Rudolf Albert von Kölliker, of Würzburg, in recognition of his distinguished contributions to zoological science. The medal will be presented at the forthcoming anniversary meeting, which will be held at Burlington House on May 24.

WE are glad to learn that Prof. Rudolph Virchow has now recovered in what may be termed a highly satisfactory manner from the serious accident with which he met a few months ago. A few days ago he was able to leave Berlin for the country, where he will reside for some months to come, leave of absence having been granted him for the whole summer term. In the meantime, his duties of lecturing and examining will be undertaken by his three principal assistants.

AT the annual meeting of the Institution of Civil Engineers, held on April 29, Mr. J. C. Hawkshaw was elected president and Sir William White, K.C.B., Mr. F. W. Webb, Sir Guilford Molesworth, K.C.I.E., and Sir Alexander Binnie were elected vice-presidents of the Institution.

NEWS from the Swedish Antarctic expedition under Dr. Otto Nordenskjöld has been received by the *New York Herald.* The expedition has disembarked at Snow Hill, Louis Philippe Land, accompanied by the surgeon, Dr. Eklof, Lieutenant Sobral and two sailors. From Cape Horn Dr. Nordenskjöld tried to sail the *Antarctic* directly south, but too many icebergs were encountered and there was danger of the ship being imprisoned in the ice for a long time, so he decided to change his course. The expedition will remain at Snow Hill until next summer.

THE conversazione of the Institution of Electrical Engineers will be held in the Natural History Museum, South Kensington, on Tuesday, July 1. In view of the fact that the Tramways and Light Railways Congress will then be sitting, and many of the foreign delegates to the Congress are likely to attend the conversazione, and that the Incorporated Municipal Electrical Association will also open its convention in London on the following day, one of the large side galleries will be opened for the conversazione in addition to the central hall of the Museum.

THE seventh annual congress of the South-Eastern Union of Scientific Societies will be held at Canterbury on June 5–7. On Thursday, June 5, the president-elect, Dr. Jonathan Hutchinson, F.R.S., will deliver the annual address. The following papers will be read during the meeting:—"The Marine Aquarium, without Circulation or Change of Water," by Mr. Sibert Saunders; "Recent Researches on Mimicry in Insects," by Prof. E. B. Poulton, F.R.S.; "The Preservation of our Indigenous Flora, its Necessity, and the Means of Accomplishing it," by Prof. G. S. Boulger and Mr. E. A. Martin; "Borings in the Neighbourhood of Canterbury," by Mr. W. Whitaker, F.R.S.; "Mycorhiza, the Root Fungus," by Miss Annie Lorrain Smith. There will be an excursion to the South-Eastern Agricultural College, Wye, by the kind invitation of the principal, Prof. A. D. Hall, who will explain the valuable experimental work now being carried on in connection with the college.

THE Lawes Agricultural Trust Committee has appointed Mr. A. D. Hall, principal of the Agricultural College, Wye, to succeed the late Sir Henry Gilbert, F.R.S., as director of the Rothamsted Experimental Station. Principal Hall, who graduated at Oxford, and has since distinguished himself by his successful development of Wye College as a centre of agricultural education, will thus carry on the experiments which were jointly conducted by Sir John Bennet Lawes and Sir Henry Gilbert for nearly sixty years, and are now of world-wide fame. It is confidently expected that not only will the continuity of past work be maintained, but that agricultural science will be advanced in many new directions at this well-known centre of research.

THE *Times* announces the death, at Newcastle-on-Tyne, of Mr. John Glover, the inventor of the "Glover Tower," the introduction of which represented a great advance in the manufacture of sulphuric acid. Mr. Glover did not patent his invention, and never derived much pecuniary profit from it, but chemical manufacturers know the value of the boon he conferred on them, and the Society of Chemical Industry testified to the importance of his work by awarding him in 1896 its gold medal for conspicuous service to applied chemistry.

THE death of Prof. H. von Pechmann, in sad circumstances, on April 24, is a great loss to the science of chemistry in Germany. He had been ill for a long time past, suffering, it would appear, from an incurable nervous trouble and frequent attacks of mental depression. That he might be restored to health he was granted a long leave of absence, and on resuming his duties was seemingly better than he had been for some time. But soon after his return he again become depressed and, while in that state, put an end to his life by taking strong sulphuric acid in his laboratory. Prof. von Pechmann was only fifty-two years of age, having been born in 1850, and the University of Tübingen will feel his loss very keenly. Appointed to the chair of chemistry at the last-mentioned University in 1895 in succession to Prof. Lothar Meyer, his skill in teaching and his personal charm were such that the number of students under him increased very considerably and, as a consequence, the enlargement of his laboratory and lecture-theatre was regarded as necessary. The late professor was a native of Nüremberg, and descended from an old Bavarian family of great social influence.

THE council of the Institution of Civil Engineers has made the following awards for papers read and discussed before the Institution during the past session:—a Telford medal (in standard gold) to Mr. W. M. Mordey, and a George Stevenson medal (in standard gold) to Mr. B. M. Jenkin; a Watt medal (in standar gold) to Mr. J. A. F. Aspinall; and Telford premiums to Messrs. W. C. Copperthwaite, A. H. Haigh and J. Davis. The council has also awarded the Howard quinquennial prize of the Institution to Mr. R. A. Hadfield (of Sheffield) for his scientific work in investigating methods of treatment and new alloys of steel, and on account of the importance, in industry, of some of the new products introduced by him. The presentation of these awards, together with those for papers which have not been subject to discussion and will be announced later, will take place at the inaugural meeting of next session.

THE seventy-third anniversary meeting of the Zoological Society of London was held on April 29, the chair being taken by the Duke of Bedford, K.G., president of the Society. The report of the council announced that the Prince of Wales had become a vice-patron of the Society. In February last the council awarded the gold medal of the Society to Sir Harry H. Johnston, G.C.M.G., K.C.B. Sir Harry Johnston received the silver medal of the Society in 1894 in acknowledgment of his zoological investigations in

British Central Africa. Since that date he has not ceased his endeavours to promote the advance of zoological discovery in the several posts that he has occupied in various parts of Africa, and has especially distinguished himself by the discovery, on the confines of Uganda, of the wonderful new African animal the okapi. The silver medal of the Society was awarded to Mr. E. W. Harper, of Calcutta, who during the past two years has presented to the Society a large number of living Indian birds new to the collection. These medals will be delivered personally to the recipients at the general meeting on June 19. The total income of the Society during the past year was 29,350*l.*, and the ordinary expenditure amounted to 27,526*l.* The extraordinary expenditure paid in 1901, amounting to 4530*l.*, was devoted entirely to new buildings and works in the Gardens. The most important works carried on at the Gardens during the past year were the rebuilding of a portion of the green-houses and the new drains to the hippopotamus-house. Besides these works, a new ape-house for the better accommodation of the anthropoid apes was commenced last autumn, and a sum of 4000*l.* has already been expended upon it. The main feature of the new building is the entire separation of the part appropriated to the spectators from that in which the animals are lodged by a glass screen, so that the animals may be kept at a nearly uniform temperature. The number of visitors to the Society's Gardens in 1901 was 725,685, showing an increase of 28,507 as compared with the previous year and an increase of 61,130 above the average of the previous ten years. The number of animals living in the Gardens on December 31 last was 2922, of which 789 were mammals, 1575 birds and 558 reptiles and batrachians. Amongst the additions made during the past year, 10 mammals, 58 birds, 21 reptiles, 3 batrachians and 2 fishes were registered as new to the collection.

The Electrochemical Society, which has just been founded in America, held its inaugural meeting at Philadelphia on April 3–5. The president is Prof. J. W. Richards, of Bethlehem, and the list of officers contains the names of most of the best-known American electrochemists. During the three days' session, twenty papers were read and discussed, and arrangements are being made, we understand, for the publication of the proceedings. The formation of this society is a sign of the importance which electrochemistry has attained in the United States. Tentative proposals have been made at various times for the formation of a similar society in this country, but it is doubtful whether there are a sufficient number of workers in this field to ensure its success. Perhaps the founding of the American society may stimulate English electrochemists to further effort in this direction. Some such organisation, in conjunction with the already existent electrochemical journal, might have the effect of bringing this country into line with Germany and America in this branch of electrical science.

We noticed in these columns last year the starting of the first large power distribution scheme in England at Newcastle-on-Tyne. Last week, on April 29, Sir Frederick Bramwell laid the foundation-stone of the first generating station of the South Wales Electrical Power Distribution Company, thus inaugurating the second scheme in this country for the supply of electricity in bulk. The area that this company proposes to supply covers Glamorgan and a part of Monmouth, a total area of slightly more than 1000 square miles. The district is one eminently suited to the electrical distribution of power, as it includes collieries, steel-works, tin-plate and copper works and numerous other factories of different kinds. The generating station now being constructed is on the banks of the Taff, near Pontypridd, and it is expected that it will be completed in about eighteen months. The plant is to consist of five sets each having a capacity of 2250 kilowatts, making a total capacity of about 15,000 horse-power. Willans engines are to be used, driving three-phase alternators by Messrs. Ganz and Co., of Budapesth. These will generate current at 12,000 volts, which will be converted to low-tension continuous current to be supplied to consumers. The steam generating plant is to consist of twenty-four water-tube Niclausse boilers, which are being built by Messrs. Willans and Robinson at Chester. Three other generating stations will be erected later. It is estimated that the cost of generating power will be slightly over three farthings a unit, which will enable it to be sold cheaply whilst allowing a considerable margin for profit.

The *Journal of Physical Chemistry* for January contains a paper by Prof. Kahlenberg on instantaneous chemical reactions and the electrolytic dissociation theory. A previous paper by the same author, in which he discussed the validity of the ionic theory of electrolysis, has been abstracted at considerable length in Nature (vol. lxv. p. 305). In this second communication Prof. Kahlenberg attacks the theory that instantaneous chemical reactions are dependent upon ions; the question that the author sought to answer was whether these reactions, causing precipitation by double decomposition, can take place in non-conducting solutions. He finds that benzene solutions of chlorides, such as HCl, $SnCl_4$, PCl_3, $AsCl_3$ and $SiCl_3$, precipitate cupric chloride from a benzene solution of copper oleate. There is thus a reaction precisely analogous to the precipitation of silver chloride from silver nitrate solutions by means of a soluble chloride, although in this case both the reacting solutions are excellent insulators. The benzene copper and the benzene chloride solutions are no better conductors than benzene itself, nor is there any increase of conductivity at the moment of precipitation. Elaborate precautions were taken in all the experiments to exclude any trace of moisture. In addition, freezing- and boiling-point measurements were made on the copper oleate solution, as well as the conductivity tests, which showed that there was no electrolytic dissociation. The author concludes that, instantaneous reaction in insulating solutions having been thus demonstrated, similar reactions in aqueous solutions cannot be explained on the ionic hypothesis without further proof.

A copy of the results of meteorological and magnetical observations at Stonyhurst College Observatory for 1901 has been received. The observations are very complete and are especially valuable from the fact that the means can be compared with those for the last fifty-four years. The total fall of rain in the year was close upon 39 inches, being 8 inches below the average. The shade temperature reached 89° on July 20, which is the highest recorded at Stonyhurst. The lowest shade temperature registered during this long series was 4°·6, on January 15, 1881. Drawings of the solar surface were made on 235 days. An appendix contains the results of meteorological observations taken at Malta, with means for the last eighteen years.

In *Symons's Meteorological Magazine* for March, there are several communications from correspondents referring to the sun-pillar of March 6. It appeared to have been most strikingly visible in the south and south-west of England, and was also observed at some inland stations. An observer at Bridport states that at 6h. 10m. p.m. it shot upwards 10° perpendicularly above the horizon, and that its colour was yellow, tinted with orange. At 6h. 25m., when its altitude had lessened to 5°, it showed a remarkably intense rosy tint, and at 6h. 40m. scarcely a trace was left. The theory of the formation of the phenomenon is that the effect of a luminous shaft is given by reflection from the under surfaces of minute crystals of ice floating horizontally. The Rev. S. Barber points out that the result is precisely similar to the formation of a long shaft of light by the reflection of the moon on the rippled surface of the sea.

A HISTORICAL account of the discovery of voltaic electricity is contributed to Nos. 642 and 643 of *Prometheus* by Dr. F. Dannemann. It deals chiefly with the discoveries of Volta, Galvani, Oersted and Ampère, and the author considers that at the beginning of the twentieth year of the nineteenth century the chief fundamental facts concerning electricity had been made known with the exception of induction, which was left for the genius of Faraday to discover.

THE tendency of streams to diverge from a straight path and to assume a zigzag course forms the keynote to a paper by Mr. Lewis B. Haupt, on single curved *versus* double straight jetties, in the *Journal* of the Franklin Institute for April. Where a river assumes a sinusoidal form there is a constant tendency of the current to eat away the concave banks and to deposit silt on the convex ones, and the author considers that if this natural tendency is counteracted by confining the stream between two parallel straight jetties, much expense in dredging out the river bed will be incurred, whereas the construction of a single wall at the concave side of bends will enable Nature to do her own work by keeping the channel scoured at the side of the wall and forming a convex training bank at the other side. This method has been tried with success at Aransas Pass in Texas, and the author is of opinion that single concave reaction-jetties may economically be adapted to the opening of the delta mouths of silt-bearing streams.

A SHORT note in the *Journal* of the Royal Microscopical Society, on a paper by Mr. G. Marpmann on distinguishing between *Pleurosigma angulatum* and *P. balticum* under low powers, may well suggest an interesting field of observation in the diffraction colours of some of the more regularly marked diatoms, and the possibility of measuring the striations of the valves even by naked eye observations. By holding a slide thickly spread with any species of the genus Pleurosigma in full sunshine, it is easy to trace the diffraction colours through the various tints of the spectrum from violet to red and even to follow the second diffraction spectrum down to the green, and it is possible in this way to go further than Herr Marpmann would appear to have done so far as can be gathered from the note in question. If a slide of *Pleurosigma angulatum* or *quadratum* is held up in a bright light and a few of the much more coarsely marked *P. balticum* happen to be mixed with the other diatoms, the latter forms, by the different colours which they exhibit, are easily discernible to the naked eye. Two other papers allied to the above are also noted in the same journal, one by Mr. W. Balfour Stokes, who concludes that the minute perforations in *Pleurosigma formosum* are silted up with silica, and one by Mr. J. Rheinberg, who has succeeded, by placing a disc of a certain form above the objective of his microscope, in obtaining two images of the same diatom in complementary colours, one being a dioptric image and the other a diffraction image of the first order.

IN the course of excavating in the churchyard of St. George the Martyr, Southwark, in connection with the Long Lane street improvement, now being carried out by the London County Council, a very interesting discovery has been made. At a depth of about nine feet, some fragments of pottery and of ornamental terra-cotta work were discovered in a heap, as if at some time or other they had been thrown together promiscuously. The fragments were exhibited at a meeting of the Society of Antiquaries on April 17. Whilst the pottery is Roman, the terra-cotta work, the ornamentation of which is peculiar, dates from the time of Henry VIII., in whose reign the art was introduced into England. Stow says that "almost directly over against St. George's Church, was some time a large and most sumptuous house, built by Charles Brandon, late Duke of Suffolk, in the reign of Henry the Eighth, which was called Suffolk House." From Antony van den Wyngaerde's "View of London," circ. A.D. 1550, which contains the only representation of the house known, it appears that the mansion was built in the style of the early Renaissance, and it therefore seems very probable that the fragments in question had their origin in Suffolk House.

THE number of new species of American butterflies, mostly from Brazil, described by Mr. W. Schaus in No. 1262 of the *Proceedings* of the U.S. Museum (vol. xxiv.) may be taken as an indication of the large amount of work which remains to be done in South American entomology.

IN *Naturwissenschaftliche Wochenschrift* of April 27, Mr. C. Frings gives a *résumé* of the experiments made by Dr. Standfuss on hybridising Lepidoptera and the influence of temperature on the development of the pupa, to which allusion has been made in these columns on a previous occasion.

ONE of the most remarkable architectural structures in existence is the left-handed spiral staircase in the Chateau de Blois, Touraine, built during the sixteenth century from designs by Leonardo da Vinci. In a well-illustrated and thoughtful article published in the May number of the *Monthly Review*, Mr. Theodore Cook shows that the design of this staircase corresponds so exactly with the spirals on the common Mediterranean shell known as *Voluta vespertilio* as to leave little doubt that the artist had that shell before him as his model. The spiral on the central column of the core of the staircase corresponds exactly, for instance, with the spiral ridges on the columella of the volute, as seen in section. This of itself would be strong, although perhaps not absolutely convincing, evidence as to the origin of the design. But the staircase has also an exquisite outer balustrade, which shows a correspondence to the coils on the external spire of the shell as close as that which obtains between the interior of the staircase and the columella of the volute. Such a dual resemblance could scarcely be the result of coincidence, and the author seems therefore to be justified in the view he has taken. It is remarkable, however, that the spirals in the staircase run in the reverse direction to those in normal examples of the shell, that of the central shaft being left-handed instead of right-handed. The spirals are, in fact, those of a "reversed," or dextral, example of the shell, of which, perhaps, one in a million occurs in nature. That Leonardo da Vinci had such a reversed shell from which to copy is unlikely; but it is known that he was left-handed, and a left-handed man would naturally draw a reversed spiral. The author, we believe, has in hand a work on natural spirals in general.

THE April number of the *Record of Technical and Secondary Education* contains an important review, by Mr. W. M. Webb, of the means taken by the different County Councils in England for training teachers in the best methods of imparting "nature-knowledge" to their pupils. The prime object of such teaching is, of course, to make the pupils conversant with natural things by seeing and handling them in their own surroundings, and for this purpose field-excursions are absolutely necessary. Some educationists would indeed reserve the American term "nature-study" for observations of this class in which the relationships of animals and plants is not the main point of instruction. But such studies cannot be altogether separated from systematic biology, and the value of a thorough biological groundwork to the teacher is accordingly emphasised by the author. Prof. Bailey's leaflets, which have been adopted by the Board of Education as a basis of nature-study, are insufficient if systematic biology is to be really taught, and short courses on the best methods of teaching natural history are therefore recommended, and have indeed been adopted by many of the County Councils. Mr. Webb's concluding summary and his observations on methods of training teachers, which are the outcome of many years' practical experience, may be commended to all interested in the subject. Much good is hoped to result from the Nature-Study Exhibition to be held in London in July. Educationists will then "be enabled to compare the results of the efforts to promote 'nature-study' which are now being made in many directions and under varied conditions, and in this way an opportunity will be afforded to shape and to consolidate opinion upon a branch of our educational economy which has escaped hitherto that concentrated attention so necessary for its development."

The May number of the *Contemporary Review* contains two articles upon scientific subjects. Prof. W. Ramsay describes the present state of our knowledge of different forms of radioactivity and Mr. J. B. Carruthers deals with a subject of a more immediate economic interest, perhaps, viz. plant sanitation. After an explanatory introduction, necessary to introduce the general reader to the terms he afterwards employs, Prof. Ramsay gives a historical sketch of the work done in the direction of perfecting our knowledge of radiation, from the time of Davy down to the present day. He explains the general characteristics of ultra-violet, kathode and X-rays, and proceeds to treat in more detail the work of Poincaré, Henry, Curie, Debierne, Schmidt, Rutherford, Becquerel and others. In conclusion, Prof. Ramsay points the moral upon which Nature has always insisted—"Whatever be the true explanations of these mysteries, it cannot be denied that they form the beginnings of what may, and almost certainly will, affect the material future of the human race. . . . It is true that investigators like Hertz, Lenard, Becquerel and the Curies do not make practical applications of their discoveries; but there is never any lack of men who discover their practical value and apply them to ends useful to mankind. All the more reason, therefore, that every encouragement should be given to the investigator, for it is to him that all our advances in physical and material well-being are ultimately due." Mr. Carruthers urges that if the same care were taken with plants as has been done to eliminate disease in men and animals, there would be many fewer plant troubles than the agriculturist has to contend with at the present time. He pleads for the introduction into this country of the means taken by the State in America, continental countries and some of our colonies, to discover and eradicate disease in plants.

We have received the "Year Book of New South Wales," which contains much useful information intended mainly for those wishing to settle in the country. The history, physical features, soils, minerals, water-supplies, trade and commerce, crown lands and many other subjects are dealt with.

The Yorkshire Geological and Polytechnic Society gives abundant evidence of its flourishing state in the last number of its *Proceedings* (new series, vol. xiv. part ii.), which contains no less than twelve papers and twenty-eight plates. We are glad to note a contribution from the pen of Prof. McKenny Hughes, on the physical geography of the district around Ingleborough. There are papers on glacial drift, on Carboniferous fishes and other subjects, and we may call special attention to a "first paper," by Mr. Robert Kidston, on the flora of the Carboniferous period, illustrated by thirteen excellent photographic plates of coal plants. There is also a memoir, accompanied by a portrait, of the late Mr. W. Percy Sladen.

In Appendix iv. to the *Kew Bulletin* is given a list of the staffs at the Royal Botanic Gardens, Kew, and at such other botanical establishments at home, in India and the Colonies as are in correspondence with Kew.

We have received the sixth set (reduced copies) of Blackie's South Kensington drawing cards, which portrays "plant forms" in the shape of leaves, fruits and flowers. Each full-sized set consists of twenty cards, measuring 28 × 20 inches. As the previous set deals with advanced ornament, the present series might with advantage have been more complex; also the comparison of the natural object and the same conventionally treated would have been instructive. As the reduced copies present the objects full size, it would be possible to combine the natural and the conventional on the same card without unduly diminishing the proportions.

The bibliography of the literature of psychology and cognate subjects, issued annually under the title of the "Psychological Index" by the *Psychological Review*, is a very serviceable publication. The index for 1901, compiled by Prof. H. C. Warren, with the cooperation of Messrs. J. L. des Bancels, L. Hirschlaff, C. D. Isenberg and W. H. R. Rivers, has just been received, and it contains an orderly and comprehensive catalogue of French, German and English psychological publications issued during the year. There are nearly three thousand titles.

The third edition of Prof. Erdmann's comprehensive "Lehrbuch der anorganischen Chemie" has been published by Messrs. F. Vieweg and Son, Brunswick. The original work was reviewed in these columns nearly three years ago (vol. lx. p. 289), and the new edition does not differ materially from it, though its value has been increased by revision and by the addition of about thirty new pages—bringing the total number up to 788 pages. The first part of the book is concerned with elementary chemical principles and methods, the second with non-metallic elements and the third with the metals. A long section at the end deals with the periodic law and some aspects of physical chemistry.

The additions to the Zoological Society's Gardens during the past week include a Sooty Mangabey (*Cercocebus fuliginosus*) from West Africa, presented by Miss Frost; a Long-eared Owl (*Asio otus*) European, presented by Miss Kate M. Hall; two Kestrels (*Tinnunculus alaudarius*) British, presented by Mr. Austin; a Black Francolin (*Francolinus vulgaris*) from the Coast of Syria, presented by Commodore Winsloe, H.M.S. *St. George*, a Short Python (*Python curtus*) from Borneo, presented by Mr. L. Wray; a Macaque Monkey (*Macacus cynomolgus*), a Bungoma River Turtle (*Emyda granosa*) from India, two Grey Monitors (*Varanus griseus*) from North Africa, a —— Anaconda (*Eunectes notoeus*), a Western Boa (*Boa occidentalis*) from Paraquay, ten Tessellated Snakes (*Tropidonotus tessellatus*), two Dahl's Snakes (*Zamenis dahli*), a Leopardine Snake (*Coluber leopardinus*), three Æsculapian Snakes (*Coluber longissimus*), a Lacertine Snake (*Coluber monspessulana*), a Dark-green Snake (*Zamenis gemonensis*) European, a Pel's Owl (*Scotopelia peli*) from Africa, a Many-zoned Hawk (*Melierax polyzonus*) from Morocco, deposited; a Brown Capuchin (*Cebus fatuellus*) from Guiana, ten Common Teal (*Querquedula crecca*) European, a Black-pointed Tequexin (*Tupinambis nigropunctatus*) from South America, purchased; a Barbary Wild Sheep (*Ovis tragelaphus*), two Mouflons (*Ovis musimon*), a Rufous-necked Wallaby (*Macropus ruficollis*) born in the Gardens.

OUR ASTRONOMICAL COLUMN.

Changes on the Moon's Surface.—That the moon is a dead planet, devoid of water-vapour and air and consequently lacking any form of life, either of the animal or vegetable world, has long been the belief of astronomers. New light upon the history of our satellite is, however, beginning to dawn, and it seems that the imagination of Mr. H. G. Wells, which illustrated so vividly the seasonal changes on the moon's surface and the appearance of vegetation of rapid growth, is supported by actual